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REMARKS/ARGUMENTS

This is Applicants' response to the Office Action dated March 24, 2004 in which claims 1, 2, 4, 5, 7, and 8 were rejected.

Claim 2 was objected to because the preamble of the claim recites "A proves". Applicants have amended claim 2 to recite "A process as set forth in claim 1" which is believed to render the objection to claim 2 moot.

Claims 1, 4, and 7 were rejected under 37 U.S.C. §102(b) as being anticipated by Bloomfield U.S. Patent No. 3,982,962. Applicants have amended claim 1 to recite "pumping an organic based liquid working fluid to an elevated temperature, flowing the organic based liquid working fluid through a heat exchanger in a fuel cell stack". Such a limitation, in combination with the other limitations of claim 1, is not suggested by Bloomfield or any of the other references of record. The Examiner has taken the position that a hydrocarbon fuel becomes mixed with water or steam in the Rankine cycle loop. However, the Examiner's reading of the reference is in error. The only place that Bloomfield teaches that steam and a hydrocarbon fuel should be mixed is in line 66, which leads to the steam reformer 18. The Examiner's attention is respectfully directed to Bloomfield, column 5, lines 39-46, which states:

"The superheated steam leaves the heat exchanger 72 and is delivered to a valve 96 via a conduit 98. The valve 96 permits the amount of steam necessary for the steam-reforming reactor 18 to pass into the conduit 66 where it mixes with unprocessed fuel at 64 as here above explained. The remainder of the superheated steam is delivered into the turbine 40 via conduit 100."

As such, only superheated steam is delivered into the turbine 40 and thus back into the Rankine cycle loop. The Examiner's attention is also respectfully directed further to Bloomfield, column 5, lines 28-32 which states in part, "water is delivered into pump 90 via conduit 92 and is delivered into thermal heat exchange relationship with a stack via conduit 94 . . ." As such, Bloomfield teaches that only water is delivered to the stack.

Applicant's independent claim 1 calls for "pumping an organic based liquid working fluid to an elevated pressure, flowing the organic based liquid working fluid through a heat exchanger in a fuel cell stack." And similarly, Applicant's independent

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claim 7 recites: "pumping a fuel cell stack organic based liquid cooling fluid to an elevated pressure, flowing the organic based liquid cooling fluid through a heat exchanger in a fuel cell stack thereby transferring thermal energy between the fuel cell stack organic based liquid cooling fluid and a fuel cell stack". Bloomfield actually teaches a way for Applicant's independent claims 1 and 7 by teaching that water should be pumped from pump 90 via line 94 into a heat exchanger of the fuel cell. The Examiner's attention is also respectfully directed to Bloomfield, column 6, lines 9-17 and figure 2. Even where Bloomfield suggests using a Rankine cycle loop with a fluid other than water, such as a refrigerant, the Rankine cycle loop does not include a fuel cell. As shown in Figure 2 of Bloomfield, a separate Rankine cycle loop is provided that does not include the fuel cell. A separate steam loop is provided (as shown in Figure 2) wherein water is pumped into a heat exchanger in the fuel cell. Again, Bloomfield teaches a way for Applicant's claimed invention.

Contrary to the Examiner's assertion, the anode exhaust from the fuel cell stack 12 does not include an organic working liquid fluid or an organic cooling fluid. Fuel cells are designed such that hydrogen is delivered to the fuel cell with trace amounts of carbon dioxide. In fact, the presence of hydrocarbon fuels will actually poison the catalyst in the fuel cell. The Examiner's attention is directed to Bloomfield, column 4, lines 58-63 which states "the anode fluent gas stream leaves the anode gas space 36 by means of a conduit 78, passes through a condenser wherein water is recovered therefrom, and then is fed into the reactor burner 20 via conduit 82 along with compressed air from the air box 46 via conduit 48." Bloomberg teaches recovering water from the anode fluent gas stream, but nowhere is it stated that the water includes any type of organic working fluid or organic cooling fluid as required by Applicant's claims.

By way of this amendment, claims 3-6 are now canceled in the case. Applicants have added new claim 10 which recites that the "organic based liquid working fluid comprises $\text{CClF}_2\text{CClF}_2$ ". Likewise, applicants have added new claim 11, depending on claim 7, and recites "the organic based liquid cooling fluid comprises $\text{CClF}_2\text{CClF}_2$ ".

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In view of the above amendments and remarks, applicants respectfully request allowance of the claims 1-2, 7-8 and 10-11 remaining in the case.

Respectfully submitted,



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